



FortiAP 221B

QuickStart Guide



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Package Contents

Fortinet's FortiAP wireless thin access points deliver secure, identity-driven WiFi client access that creates a fortified WLAN network that is centrally managed by a FortiGate or FortiWiFi platform.

Your box contains the following:

- FortiAP 221B

- QuickStart Guide (with Mounting Template)

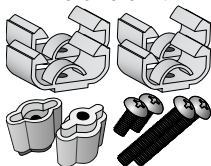
- Mounting Bracket

- T-Rail Mounting Hardware Kit

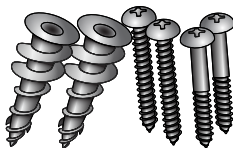
- Wall/Ceiling Mounting Hardware Kit



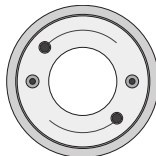
T-Rail Mounting
Hardware Kit



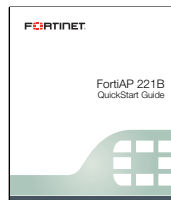
Wall/Ceiling Mounting
Hardware Kit



Mounting
Bracket



QuickStart Guide



Note: Accessories may not be exactly as shown.

Mounting Your FortiAP Unit

Using the provided hardware, the FortiAP unit can be attached to a ceiling or wall.

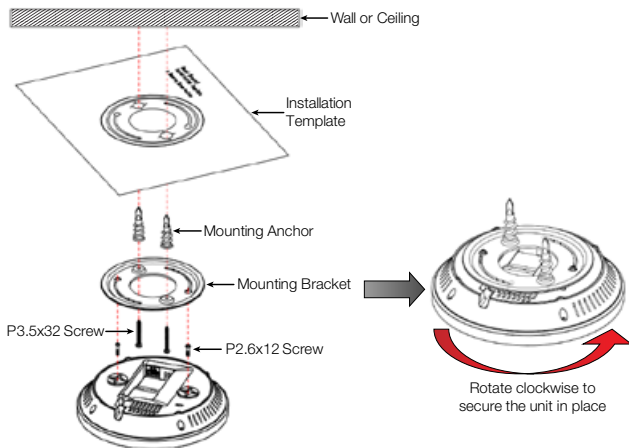
To attach the unit to a ceiling or wall using the mounting bracket:

1. Attach the mounting bracket to the wall or ceiling using the Mounting Template and the provided wall/ceiling mounting hardware kit (P3.5x32 screws and Mounting Anchors).
2. Insert the provided P2.6x12 screws into the bottom cover of the FortiAP unit.
3. Leave enough of the screws exposed to ensure that the unit can be attached to the mounting bracket.

If extra space is required, use the provided spacers and long screws from the T-Rail mounting hardware kit to increase the space between the unit and the mounting bracket.

4. Mount the FortiAP unit on the mounted mounting bracket by rotating the unit clockwise about 90 degrees to secure it in place.

You can now proceed with connecting your FortiAP unit.

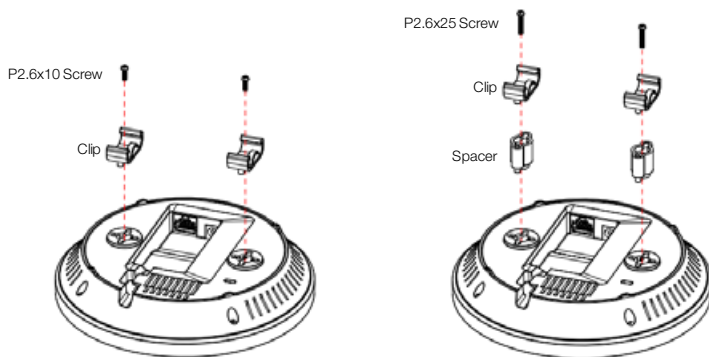


To attach the unit to a ceiling using the provided T-rail connectors:

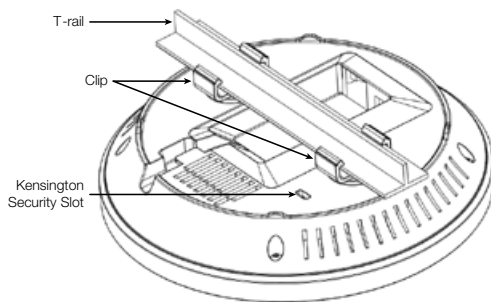
1. Attach the T-rail connectors to the bottom cover of the FortiAP unit using the provided P2.6x10 screws.

Two sizes of T-rail connectors are included in the mounting hardware kit: 15/16in (2.38cm) and 9/16in (1.43cm).

If extra space is required to accommodate drop ceiling tiles, use the provided spacers and P2.6x25 screws.



2. Line up the connected T-rail connectors with an appropriately sized rail and press the unit onto the rail until it snaps into place.



Note: To protect your FortiAP unit from unauthorized removal, use the Kensington Security Slot to attach a cable lock (cable lock is not included).

Connecting Your FortiAP Unit

Using the provided mounting hardware, attach the FortiAP unit to a wall or ceiling, as described in the previous section.

Adequate grounding must be provided to the FortiAP unit and the PoE injector, in compliance with your local electrical code or regulations.

Caution: This device complies with IEEE 802.3af PoE specification. Do not use any PoE injectors that are not IEEE 802.3af compliant as they may damage your device.

To connect the FortiAP unit:

1. Insert an Ethernet cable into the Ethernet port of the FortiAP unit.
2. Insert the other end of the Ethernet cable into your FortiGate, FortiWiFi, or FortiSwitch unit.

If you are using PoE, ensure that the Ethernet cable is connected to an applicable port on your FortiGate unit, FortiSwitch unit, or PoE injector.

3. If you are not using PoE, connect a region-specific AC plug adapter to the optional power adapter by inserting the round disk into the adapter and rotating clockwise until you hear the disk lock in place. Then insert the DC plug of the power adapter into the DC power jack on the FortiAP unit.

Note: For FortiWiFi units, the wireless controller feature is only supported on units running FortiOS 4.0 MR3 and higher.

Caution: This equipment is to be connected only to PoE networks without routing to the outside plant.

Configuring Your FortiAP Unit

The FortiAP unit is designed to require no configuration in most networks. Zero Configuration mode works if the unit is directly connected to the FortiGate or FortiWiFi performing the Wireless LAN Controller (WLC) functions, or on the same layer-2 network and subnet as the FortiGate or FortiWiFi unit.

If the FortiAP wireless controller's IP address cannot be determined using Zero Configuration mode, or if the network uses static IP addresses, it can be configured to use a static IP address.

To enable the FortiAP using Zero Configuration:

1. After connecting the FortiAP unit as described in the previous chapter, the unit goes through its boot procedure and requests an IP address from the DHCP server.
2. If the IP address is retrieved successfully, the FortiAP enters discovery mode to locate a FortiGate or FortiWiFi wireless controller. The discovery modes are:
 - Broadcast
 - Multicast
 - DHCP option 138
3. Verify that the FortiAP has successfully connected to the controller.
In the FortiGate Web-based Manager, go to *WiFi Controller > Managed Access Points > Managed FortiAP*. A successfully discovered unit displays an orange circle with a question mark.
4. Select the access point and click *Edit*.
5. In the *State* field, select *Authorize*.
6. In the *AP Profile* field, select *Change*, then select a profile from the list and click *OK*.

The configuration is downloaded from the wireless controller to the FortiAP and the WiFi LED lights up.

To enable the FortiAP with a static IP address:

1. Connect the FortiAP device to a separate private switch or hub, or directly connect it to your management computer via a cross-over cable.

2. Configure the management computer to be on the same subnet as the internal interface of the FortiAP unit:
 - a. Browse to the *Network and Sharing Center > Change Adapter Settings > Local Area Connection Properties > Internet Protocol Version 4 (TCP/IPv4) Properties*.
 - b. Change the IP address of the management computer to 192.168.1.3 and the netmask to 255.255.255.0.
3. Use a Telnet application to connect to IP address 192.168.1.2.
4. Type `admin` in the *Name* field, leave the *Password* field blank, and press *Enter*.
5. Configure a static IP address for the FortiAP unit and netmask & gateway information for your network, using the following commands:

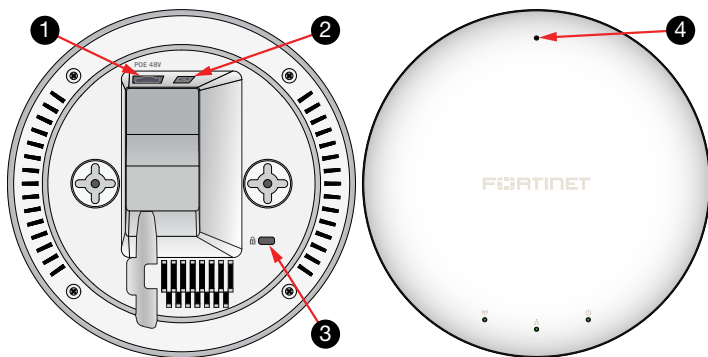
```
cfg -a ADDR_MODE=STATIC
cfg -a AP_IPADDR=xxx.xxx.xxx.xx
cfg -a AP_NETMASK=255.255.255.0
cfg -a IPGW=yyy.yyy.yyy.yyy
cfg -a AC_IPADDR_1=zzz.zzz.zzz.zzz
```

where xxx is the IP address of the FortiAP unit, yyy is the Gateway IP address and zzz is the IP address of the FortiGate Wireless Controller.
6. Save the configuration by typing the following command:

```
cfg -c
```
7. Unplug the FortiAP unit and plug it back in order for the configuration to take effect.
8. Move the FortiAP to the intended deployment location and connect the Ethernet cable as described in the Connecting Your FortiAP Unit section.
9. Log in to the FortiGate controller Web-based Manager, and go to *WiFi Controller > Managed Access Points > Managed FortiAP*. A successfully discovered unit displays an orange circle with a question mark in the *Status* column.
10. Select the access point and click *Edit*.
11. In the *State* field, select *Authorize*.
12. In the *Edit FortiAP* dialog box, select *Enable Wireless Radio*. Leave the remaining settings at their default values. The configuration is downloaded from the FortiGate unit to the FortiAP device.

For more information, see the Deploying Wireless Networks Guide, available on Fortinet's technical documentation website, <http://docs.fortinet.com>.

Technical Specifications

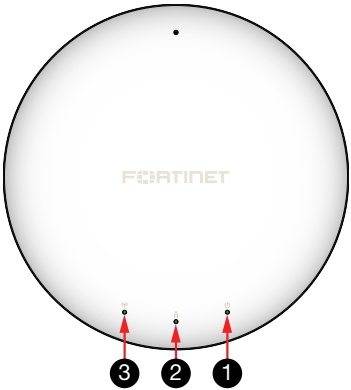


#	Interface	Type	Description
1	Ethernet Port	RJ-45	Gigabit Ethernet port with PoE support up to 12.9W, IEEE 802.3af.
2	DC-IN		Power connection for optional power adapter. 12V DC, 1.25A, center positive
3	Kensington Security Slot		Anti-theft security slot for attaching a lock-and-cable apparatus.
4	Reset Button		Hold for 5 seconds to reset the FortiAP unit to its factory defaults.

Hardware Specification	Description
Optional PoE Injector	Fortinet PoE Injector: GPI-115 and FortiSwitch products with PoE support.
Frequency Bands (GHz)	802.11a/n: 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850 802.11b/g/n: 2.400–2.483
Indoor/Outdoor Deployment	Indoor Only

Note: The availability of some specific channels and/or operational frequency bands are country-specific and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

LED Specifications



#	LED	State	Description
1	Status	Off	No power.
		Green	Power on and ready for operation.
		Flashing Green	The device is booting.
		Amber	The CPU or system has a fault.
		Flashing Amber	The software is self testing and loading.
2	Ethernet Port	Off	No link established.
		Amber	Connected at 10/100 Mbps (Fast Ethernet).
		Green	Connected at 1000 Mbps (Gigabit Ethernet).
		Flashing Green	Link activity.
3	WiFi	Off	Wireless interface is disabled or off.
		Green	At least one radio is enabled.
		Flashing Green	Wireless interface is active.

Cautions and Warnings

Environmental specifications

Refer to specific Product Model Data Sheet for Environmental Specifications (Operating Temperature, Storage Temperature, Humidity, and Altitude).

Référez à la Fiche Technique de ce produit pour les caractéristiques environnementales (Température de fonctionnement, température de stockage, humidité et l'altitude).

Safety

Caution: This equipment is to be used in a Network Environment 0 per IECTR 62101. This product is connected only to PoE networks without routing to the outside plant.

Attention: Ce matériel doit être utilisé dans un Environnement Réseau 0 par IECTR 62101. Ce produit est uniquement connecté aux réseaux PoE sans installation externe de routage.

Regulatory Notices

Federal Communication Commission (FCC) – USA

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received; including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 21cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Caution: Operation of this device is restricted to indoor use only.

Industry Canada Equipment Standard for Digital Equipment (ICES) – Canada

This Class B digital apparatus complies with Canadian ICES-003.

Industry Canada (IC RSS) – Canada

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 21cm between the radiator & your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 21cm de distance entre la source de rayonnement et votre corps.

Caution: The device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems. High-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

Attention: Le dispositif de la bande 5150-5250 MHz est réservé à un usage intérieur afin de réduire l'interférence nuisible potentielle aux systèmes mobiles par satellite co-canal. Les radars à haute puissance sont désignés comme utilisateurs principaux (à savoir les utilisateurs prioritaires) des bandes 5250-5350 MHz et 5650-5850 MHz et que ces radars pourraient causer des interférences et / ou endommager les périphériques LE-LAN

European Conformity (CE) - EU

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

CE 0560 

National Telecommunications Commission (NCC) – Taiwan

NCC警語

根據NCC低功率電波輻射性電機管理辦法規定：

第十二條

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第十四條

低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信法規定作業之無線電通信。

低功率射頻電機需忍受合法通信工業、科學及醫療用電波輻射性電機設備之干擾。

Agência Nacional de Telecomunicações (ANATEL) – Brazil

Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário.



3783-13-8867



(01) 07898932666578

Para maiores consultas sobre ANATEL consulte o site: www.anatel.gov.br

Voluntary Control Council for Interference (VCCI) – Japan

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取扱説明書に従って正しい取り扱いをして下さい。

V C C I - B

Bureau of Standards Metrology and Inspection (BSMI) – Taiwan

The presence conditions of the restricted substance (BSMI RoHS table) are available at the link below:

<https://www.fortinet.com/bsmi>

Documentation and Links

The following Fortinet web pages provide information and resources for your Fortinet product:

1. Customer Service & Support: <https://support.fortinet.com>

On this page you can create a support account with Fortinet, register and manage your products, download updates, firmware images and release notes, and create technical support tickets.

2. Technical Documentation: <http://docs.fortinet.com>

This page provides the most up-to-date versions of Fortinet publications for the entire family of Fortinet products.

3. Knowledge Base: <http://kb.fortinet.com>

This page provides Fortinet technical documentation, such as troubleshooting, how-to articles, example configurations, FAQs, technical notes, and more.

4. Technical Discussion Forums: <https://support.fortinet.com/forum>

This page allows you to communicate with other customers and Fortinet partners about Fortinet products, services, and configuration issues in a forum environment.

5. Training Services: <http://training.fortinet.com>

This page provides course descriptions, availability, schedules, and locations of training programs in your area.

6. FortiGuard Threat Research and Response: <http://www.fortiguards.com>

This page provides up-to-date information on vulnerabilities and threats, and includes a virus scanner, Internet Protocol (IP) signature look-up, web filtering tools, and related information.

Comments on Technical Documentation

Please send comments or information about any errors or omissions in this or any Fortinet technical documents to techdoc@fortinet.com.

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If you did not yet register your Fortinet product, please register your product now.

Register

Register your Fortinet product in order to receive:

- Technical Support
- New product features
- Protection from new threats

Enregistrer

Vous devez enregistrer le produit pour recevoir:

- Support technique
- Nouvelles fonctionnalités du produit
- Protection contre de nouvelles menaces

Registra

La reistrazione ti permette di usufruire di:

- Supporto Tecnico
- Nuove funzionalita
- Protezione dalle ultime minacce

Registrar

Debe registrar el producto para recibir:

- Apoyo técnico
- Nuevas funcionalidades del producto
- Protección contra ataques

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Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

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6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for your own use and reverse engineering for debugging such modifications. You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

- a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)
- b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.
- c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
- d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
- e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable. It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

- a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.
 - b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.
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If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

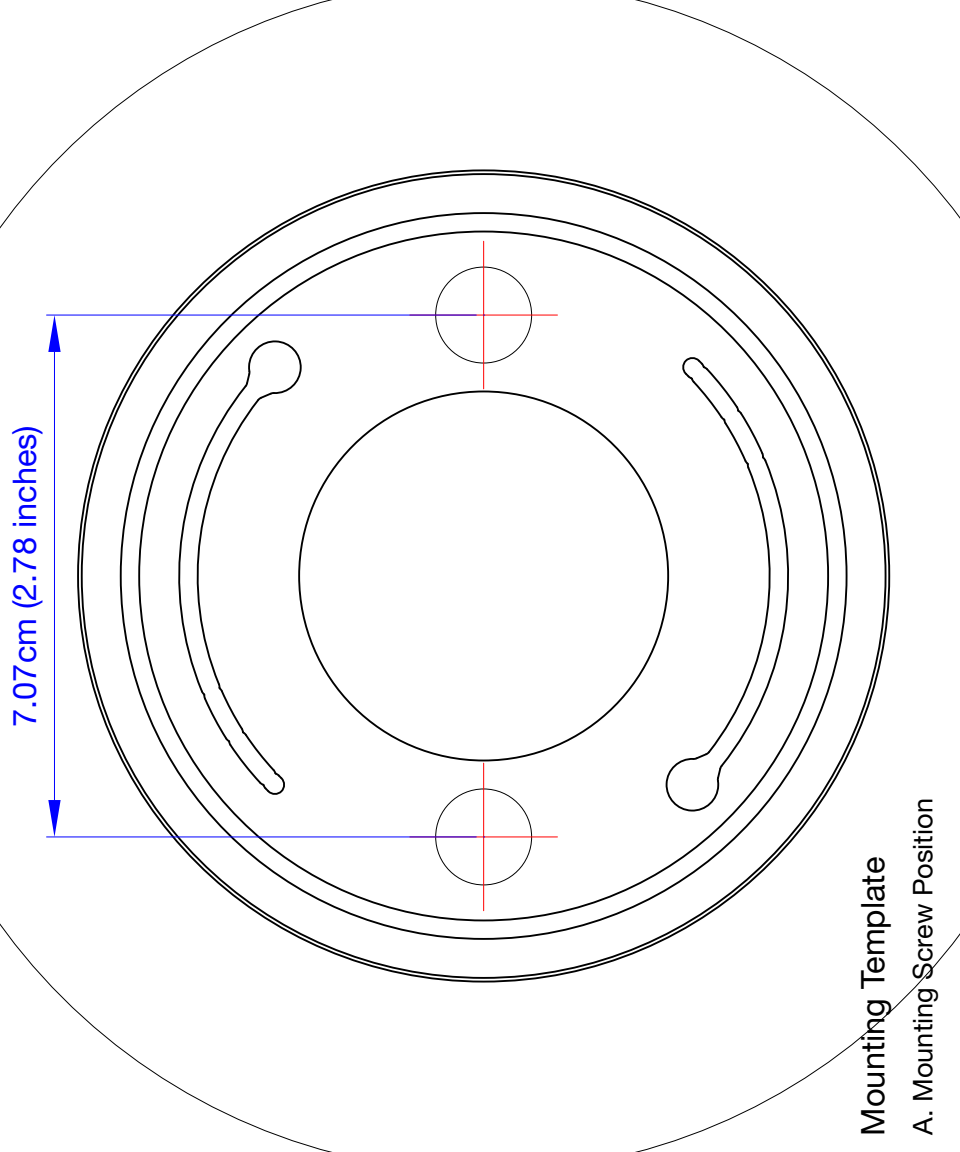
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Mounting Template

A. Mounting Screw Position

